PROGRESS
OF
MEDICAL SCIENCE

MEDICINE

UNDER THE CHARGE OF
W. S. THAYER, M.D.,
PROFESSOR OF CLINICAL MEDICINE, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MARYLAND,
AND
ROGER S. MORRIS, M.D.,
ASSOCIATE PROFESSOR OF MEDICINE, WASHINGTON UNIVERSITY, ST. LOUIS, MISSOURI.

The Phthalein Test. An Experimental and Clinical Study of Phenolsulphonephthalein in Relation to Renal Function in Health and Disease. —L. G. ROWNTREE and J. T. GERAGHTY (*Arch. Int. Med.*, 1912, ix, 284) describe their technique of injecting and measuring the excretion of phthalein, using 6 mgms. subcutaneously, intramuscularly, or intravenously, and recording the time of appearance of the drug, and the amount excreted in the urine in one and two hours. This is done by the Duboscq colorimeter, their modification of the Autenrieth-Konigsberger colorimeter, or by graduated cylinders. Excretion in health following different methods of administration has been studied in detail. Experimentally the time of appearance was shortest after intravenous injection and more rapid following intramuscular than subcutaneous. In humans Rowntree and Geraghty believe that absorption plays a small role when one hour determinations following intralumbar injections are employed. The average output is 57.5 per cent. Administration into the lumbar muscles is the method of choice. Experimentally, the influence of diuretics was studied. It was found that those drugs which stimulate the secreting cells, slightly increase the phthalein output, while those which act by changes in blood or osmotic pressure have no effect. In patients, no appreciable difference in output could be detected with the therapeutic dose of common diuretics. Since the kidney shows a specificity for phthalein, it was attempted to discover to which part of the kidney this action belonged. By using the renal system in frogs, it was shown that phthalein could be excreted by the tubules. Presumably this is true of mammals. In experimental acute tubular nephritis, there is marked diminution in output, while there is little diminution in the early stages of the acute vascular nephritis. Hence Rowntree and Geraghty conclude that the glomeruli play a subsidiary part in the excretion of the drug. Five cases of acute nephritis were studied. There was a marked decrease in phthalein output when the clinical condition was grave. Twenty-five cases of chronic parenchymatous nephritis were studied. In mild cases very little disturbance of function was indicated. But where the drug is excreted in traces or not at all, a grave prognosis should be given though no signs of uremia exist. Twenty-three cases of chronic interstitial nephritis were studied. The test proved of immense value in revealing the degree of destruction of renal substance, and demonstrated itself to be of extreme importance for diagnosis and prognosis. Twenty-five cases of uremia were studied. In all, for two hours the phthalein elimination was zero or a faint trace. Thirty-three cases of broken compensation or in which cardiac insufficiency was associated with varying grades of true nephritis were studied. Rowntree and Geraghty found that decrease in function accompanies marked passive congestion without nephritis, but as the condition improves the phthalein output increases. Rowntree and Geraghty believe that in cases of obstruction of the lower urinary tract, a marked decrease in phthalein output invariably means severe derangement of renal function. The test, in conjunction with the clinical condition is of more value than the study of total urine, solids, nitrogen, and urea. Rowntree and Geraghty describe the technique of the phthalein test as applied to estimation of the function of the individual kidney by means of ureteral catheterization. In no instance was there inhibition of function as the result of this to seriously interfere with the value of the test. In unilateral disease in proportion to the decrease in function on the diseased side, approximately there was a proportionate increase in function on the healthy side. In bilateral disease it was possible to determine the individual function of each kidney and whether it was normal, less, or greater than normal. On the whole, Rowntree and Geraghty believe that phenolsulphonephthalein is better adapted for use as a functional test than any other drug previously employed for this purpose, on account of its early appearance in the urine, and the rapidity and completeness of its elimination by the kidney.

A Method of Reducing Excessive Frequency of the Heart Beat, by Means of Rhythmical Muscle Contractions Electrically Provoked.— W. Hampson (*Proc. Roy. Soc. Med.*, 1912, v, 119), reports that the stimulation of muscles by means of pulsating electrical currents causing alternate contraction and relaxation have a beneficial action on their development. The Bergioné system allows for the passage of current through large muscle areas without discomfort. Schott's method of treatment for suitable cardiac cases by properly graduated exercise has long been familiar. The application of these principles in heart disease produces results of interest and importance. Muscular contraction squeezes out blood from the veins towards the heart, the action of the valves securing its passage in the right direction. The subsequent relaxation allows the veins to fill and receive more blood than if they had not been so completely emptied. Thus the muscles become a modified heart. If the muscular contractions are made nearly synchronous with the heart beat by electrical stimulation, the artificial